

FIBER OPTIC LASER TRANSMITTER WITH
REDUCED NEAR END REFLECTIONS

ABSTRACT OF THE DISCLOSURE

A laser apparatus, which generates laser light to be transmitted through an optical transmission system includes a laser that emits light that is substantially linearly polarized, a housing in which the laser is mounted, and a quarter wave retarder plate. The quarter wave retarder plate is disposed so that the emitted laser light passes through the quarter wave retarder plate prior to transmission of the emitted laser light through the optical transmission system. The quarter wave retarder plate causing the emitted laser light to become circularly polarized with a predefined handedness. The quarter wave retarder plate is also disposed so that light reflected by the optical transmission system back toward the laser passes through the quarter wave retarder plate a second time prior to reaching the laser, causing the reflected light to become linearly polarized with a linear polarization that is orthogonal to the polarization state of the light emitted by the laser. In one embodiment, a linear polarizer is positioned adjacent a front face of the quarter wave retarder plate. The linear polarizer imposes a particular linear polarization orientation on the emitted laser light, and blocks the reflected light that passes through the quarter wave retarder plate because that light has a linear polarization that is orthogonal to the polarization axis of the linear polarizer.